

# Ball valves with built-in check valve

3230 - 332 - 333 - 334 - 327 series



01021/10 GB

**BALLSTOP**



## Function

The ball valves with built-in check valve BALLSTOP combine two devices in a single body: a ball shut-off valve and a check valve housed inside the ball itself. This dual function allows for quicker installation and a more compact device, which means less space required on the pipe.

BALLSTOP valves are available in two versions for two different uses: the version with black plastic external ring for use in domestic water systems and the version with red external ring for heating systems.

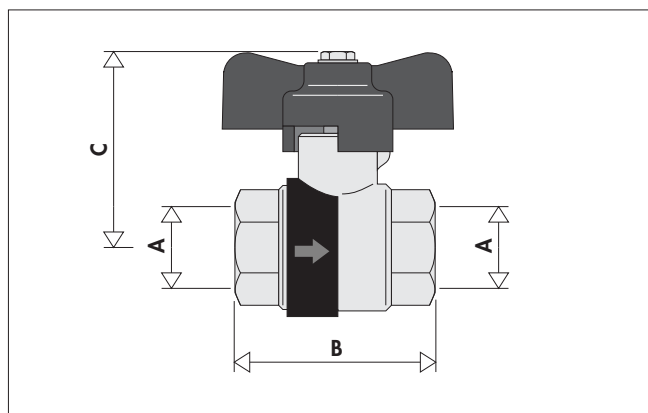


## Product range

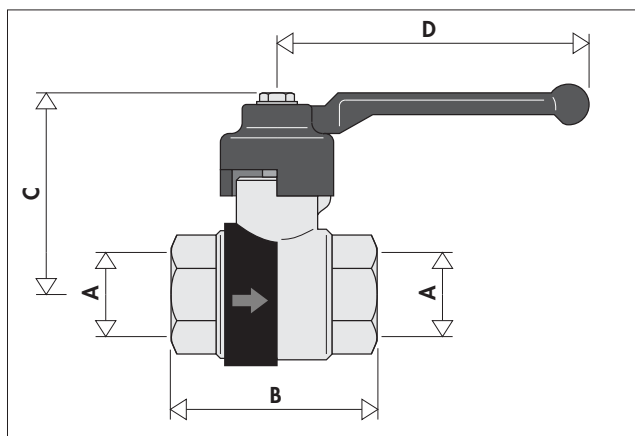
3230 series	Ball valve with built-in check valve, butterfly handle	sizes 1/2"–1"
3230 series	Ball valve with built-in check valve, lever handle	sizes 1 1/4"–2"
Code 332400	Ball valve with built-in check valve, butterfly handle	size 1/2"
333 series	Ball valve with built-in check valve, butterfly handle	sizes 1/2" and 3/4" x 3/4"
334 series	Ball valve with built-in check valve, butterfly handle	sizes 1/2" and 3/4" x 3/4"
327 series	Ball valve with built-in check valve, butterfly handle	sizes 1/2" and 3/4"
327 series	Ball valve with built-in check valve, lever handle	sizes 1"–2"

series ↗	3230 - 332 - 333 - 334	327
<b>Materials</b>		
Body:	brass EN 12165 CW617N, chrome plated	brass EN 12165 CW617N, chrome plated
Ball:	brass EN 12164 CW614N, chrome plated brass EN 12165 CW617N, chrome plated	brass EN 12164 CW614N, chrome plated brass EN 12165 CW617N, chrome plated
Check valve:	size 1/2" size 3/4" sizes 1" and 1 1/4" sizes 1 1/2" and 2"	size 1/2" size 3/4" sizes 1" and 1 1/4" sizes 1 1/2" and 2"
Check valve spring:	PA	PA
Check valve seal:	POM	POM
Control handle (lever, butterfly):	PSU	PSU
Control stem seals:	brass EN 12164 CW614N, chrome plated stainless steel NBR	brass EN 12164 CW614N, chrome plated stainless steel EPDM
<b>Performance</b>		
Medium:	water, hydrocarbons	water, glycol solutions
Max. percentage of glycol:	-	30%
Max. working pressure:	16 bar	16 bar
Min. pressure for check valve opening (Δp):	0,02 bar	0,02 bar
Working temperature range:	5–90°C	5–110°C
<b>Connections</b>		
	3230 series: 1/2"–2" F Code 332400: 1/2" M x 1/2" F Code 333400: 1/2" F x nut 3/4" F Code 333500: 3/4" F x nut 3/4" F Code 334400: 1/2" M x nut 3/4" F Code 334500: 3/4" M x nut 3/4" F 333 and 334 series: drilled anti-tamper safety nut	1/2"–2" F

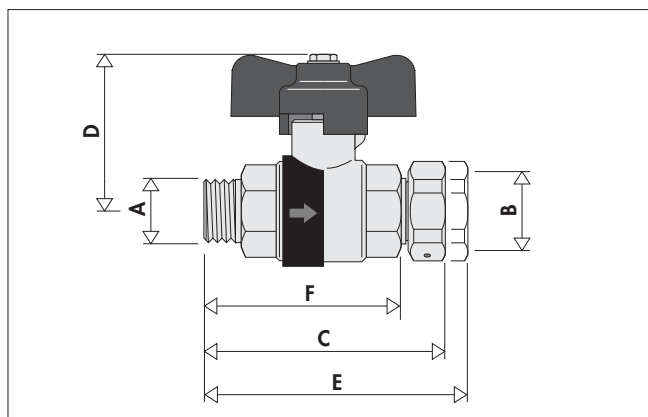
## Dimensions



Code	Code	A	B	C	Mass (kg)
323040	327400	1/2"	51	50,5	0,28
323050	327500	3/4"	57	52,5	0,37
323060		1"	70	61,5	0,55

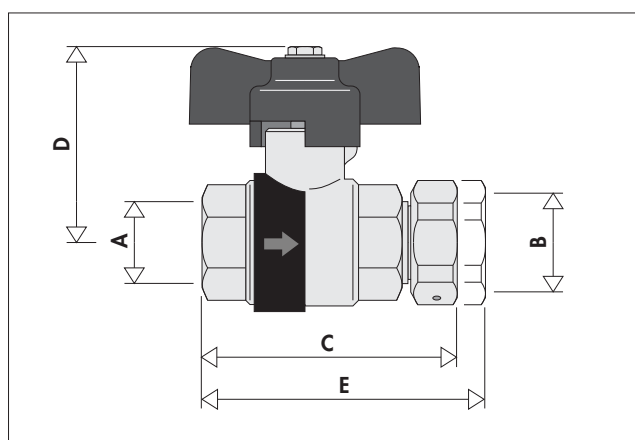


Code	Code	A	B	C	D	Mass (kg)
	327600	1"	70	61,5	111	0,55
323070	327700	1 1/4"	83	65,5	111	1,01
323080	327800	1 1/2"	89	80	149	1,60
323090	327900	2"	110	89	149	2,80



Code	A	B	C	D	E	F	Mass (kg)
332400	1/2"	1/2"	-	50,5	-	61	0,40

334400	1/2"	3/4" nut	63,5	50,5	70	-	0,40
334500	3/4"	3/4" nut	69,5	52,5	73	-	0,42



Code	A	B	C	D	E	Mass (kg)
333400	1/2"	3/4" nut	63,5	50,5	70	0,42
333500	3/4"	3/4" nut	69,5	52,5	73	0,42

## Operating principle

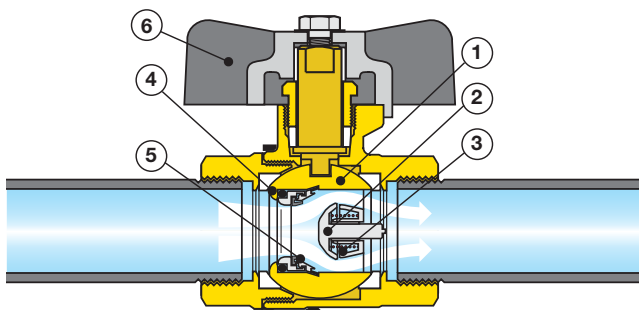
The valve consists of a ball (1) containing a check obturator (2) with a fluid-dynamic shape. During normal circulation of the medium in the system, the obturator is pushed against the retaining spring (3) housed inside it, thereby opening the aperture and allowing the medium to flow through it. When the pressure downstream of the valve is higher than the upstream pressure, the obturator is pushed in the opposite direction against the seal seat on the ball (4), in order to prevent backflow of the medium.

Even with no flow, the valve is closed by the action of the retaining spring alone.

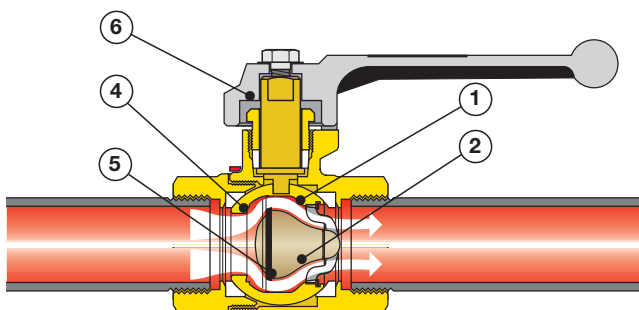
The obturator, owing to the thrust exerted by the retaining spring (3) and by the downstream pressure, completely shuts off the flow passage by means of the specially shaped seal (5) (positioned on the ball seal seat or on the obturator depending on the version).

The ball valve, equipped with butterfly handle (6) or lever handle depending on the size of the valve, acts as a standard shut-off device.

## 3230 series



## 327 series



## Construction details

### Silent operation and low head losses

Thanks to the ogival, fluid-dynamic shape of the obturator, the BALLSTOP valve ensures silent operation. Furthermore the flow rate curve is fairly "flat", indicating limited head loss increases even in the case of substantial increases in flow rate.

### Quick operation

The seal (positioned on the end point of the ball or on the obturator itself depending on the version) and the retaining spring (housed inside the obturator) ensure instant shut-off and a perfect seal, even with slight back pressure.

### Insensitive to dirt

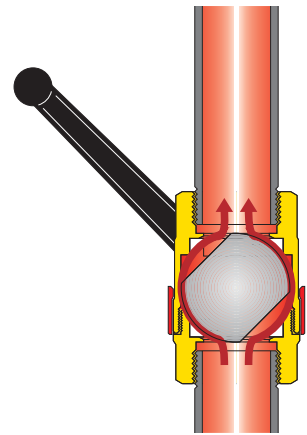
The sliding parts, due to the special coupling, are insensitive to dirt particles present in the water and deposits which may form after long periods of non-use.

### Foodsafe elastomers and other materials

The elastomers used in the seals and the other materials of 3230, 332, 333 and 334 series BALLSTOP ball valves meet the compatibility requirements for use with potable water as required by WRAS and ACS certifications.

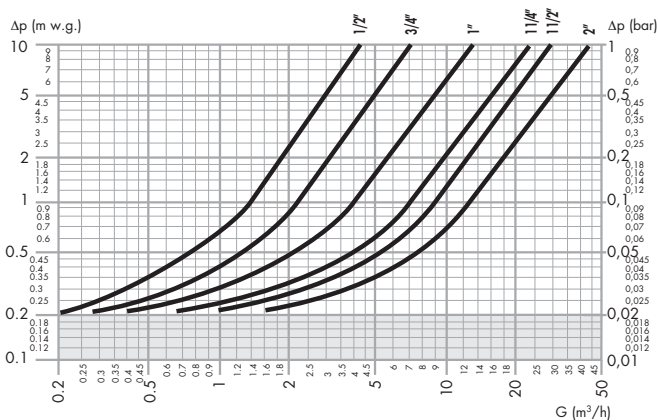
## Easy system commissioning and maintenance

During system commissioning or maintenance or if it is necessary to reverse the flow direction through the valve, setting the lever to 45° disables the check valve, enabling the medium to flow through the aperture between the ball and the valve body. This procedure also releases any air which may have formed while the system was not in use.



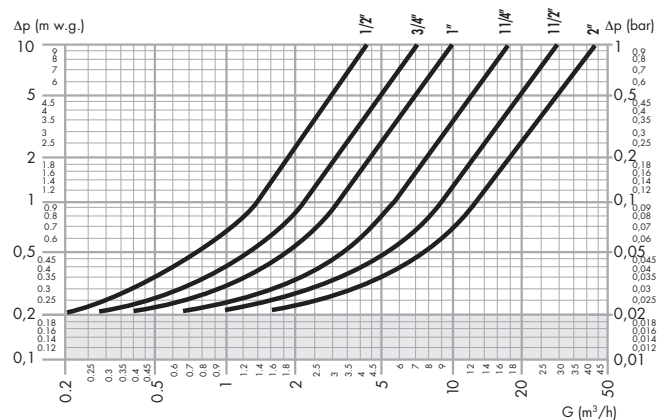
## Hydraulic characteristics

### 3230 - 332 - 333 - 334 series



Ø	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
Kv (m³/h)	4,2	7	13,5	24	29	43

### 327 series

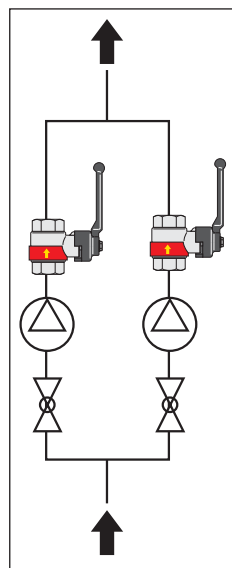


Ø	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
Kv (m³/h)	4,2	7	10	18	29	43

## Installation

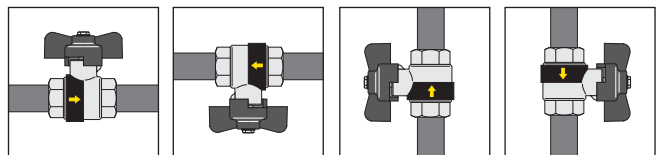
Caleffi 3230, 332, 333 and 334 series BALLSTOP ball valves with built-in check valve are recommended **for domestic water systems** where there is a need to disable the check valve. Typical uses include connection to the water network or installation on hot water storage supply lines etc.

Caleffi 327 series BALLSTOP ball valves with built-in check valve are recommended **for heating systems**, thanks to the seal materials which are compatible with high temperature operating conditions. The application of a check valve after the pump (see figure opposite) is aimed at preventing the convective motion of natural circulation when the circulator is switched off and which causes an unwanted increase in room temperature, resulting in higher costs and discomfort for the user.



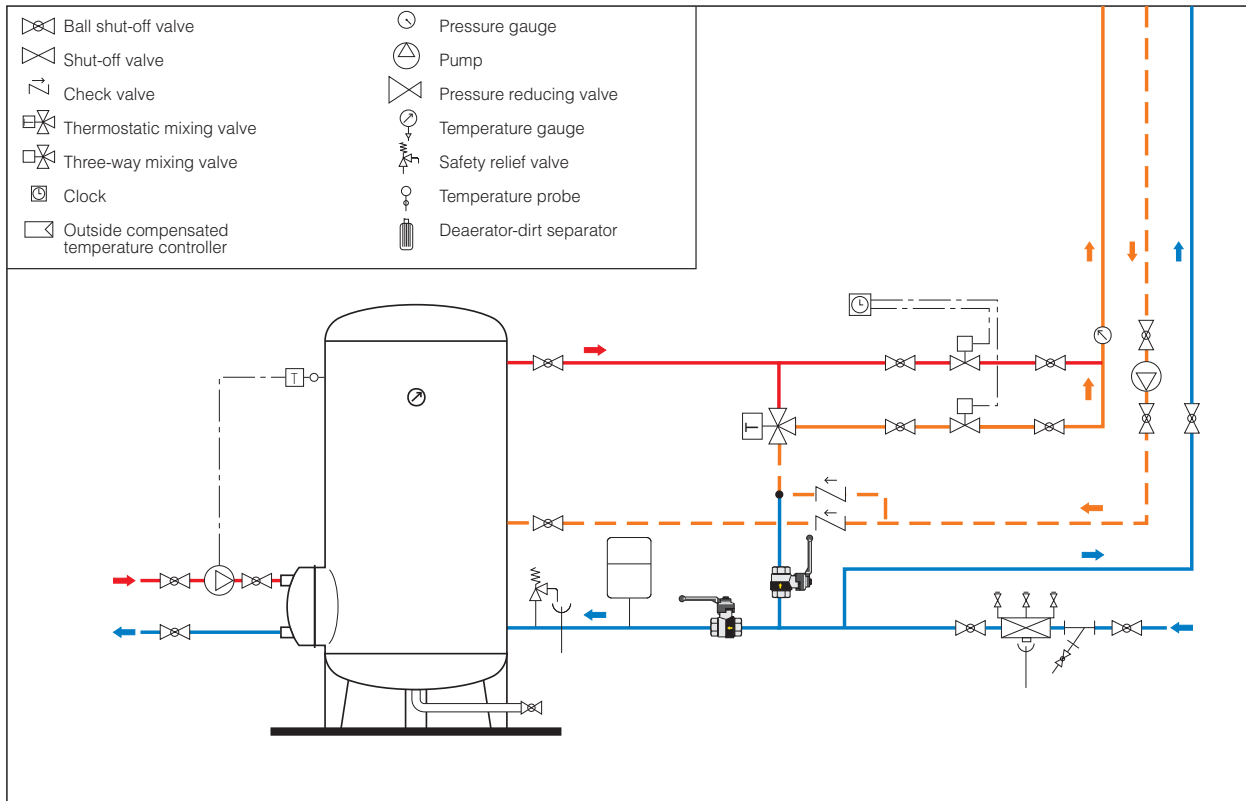
By contrast the ball valve, where the check device is housed, serves as a shut-off device: if the pump is removed or the boiler emptied, it prevents all the water draining out from the system.

The ball shut-off valve with built-in check valve must be installed in the system following the flow direction indicated on the plastic band applied to the valve body. The valve can be fitted in any position, vertical, horizontal or upside down.

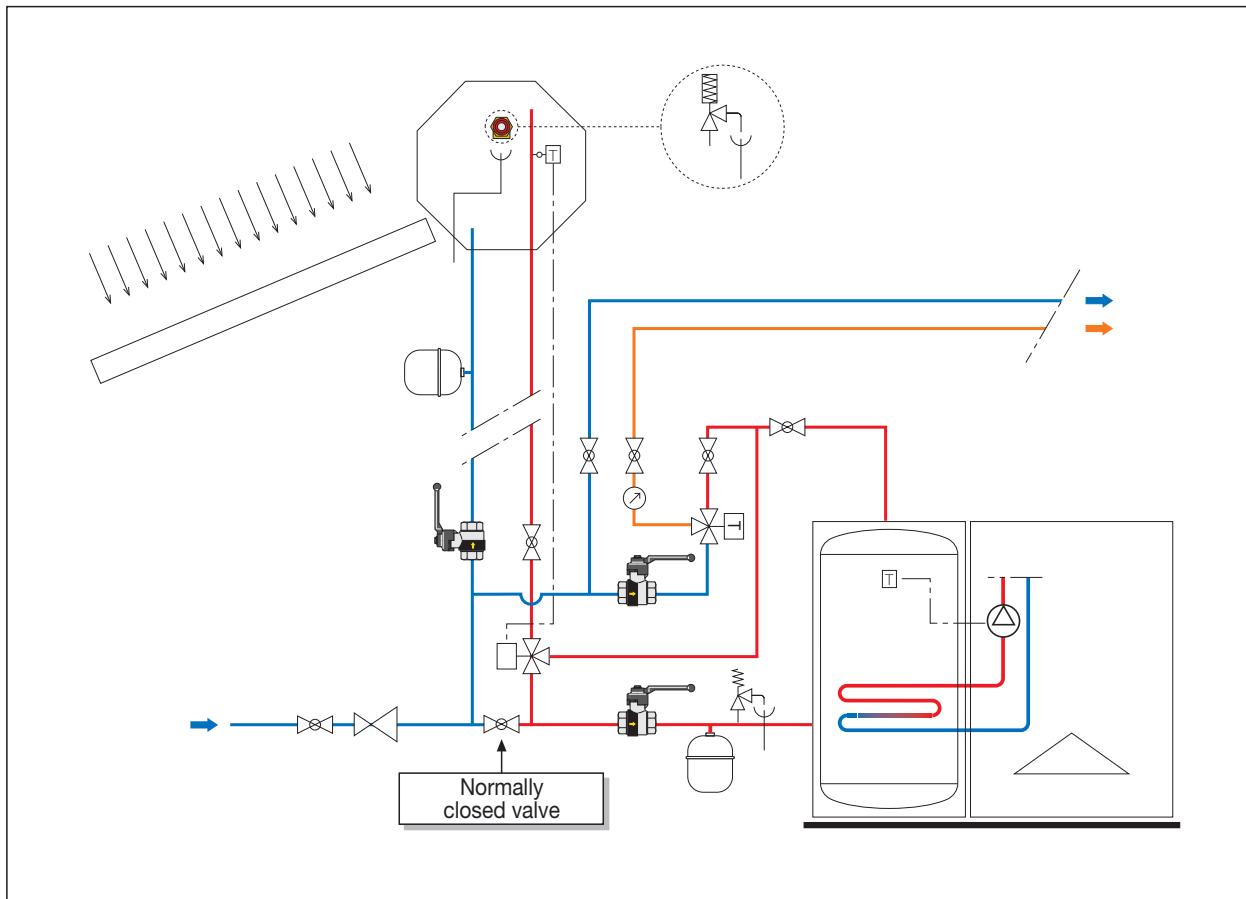


## Application diagrams

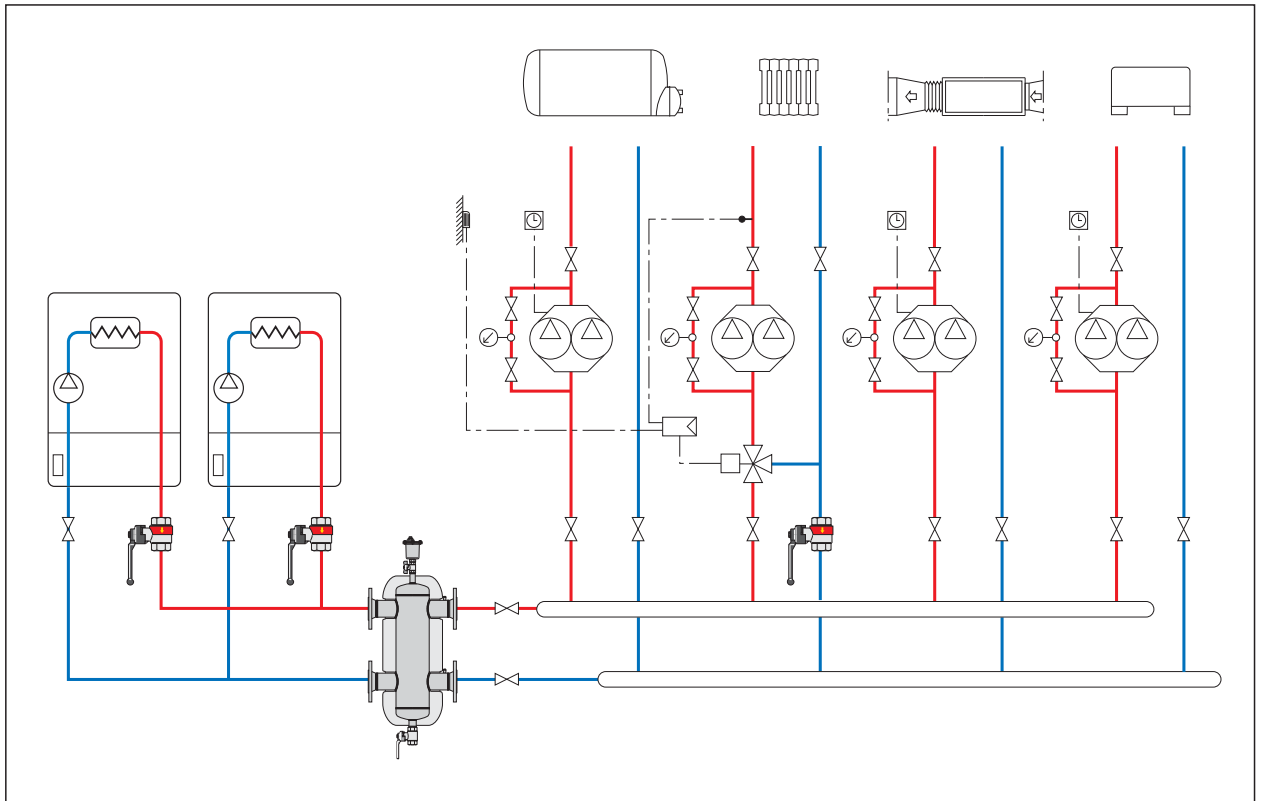
### Central hot water production system with thermal disinfection



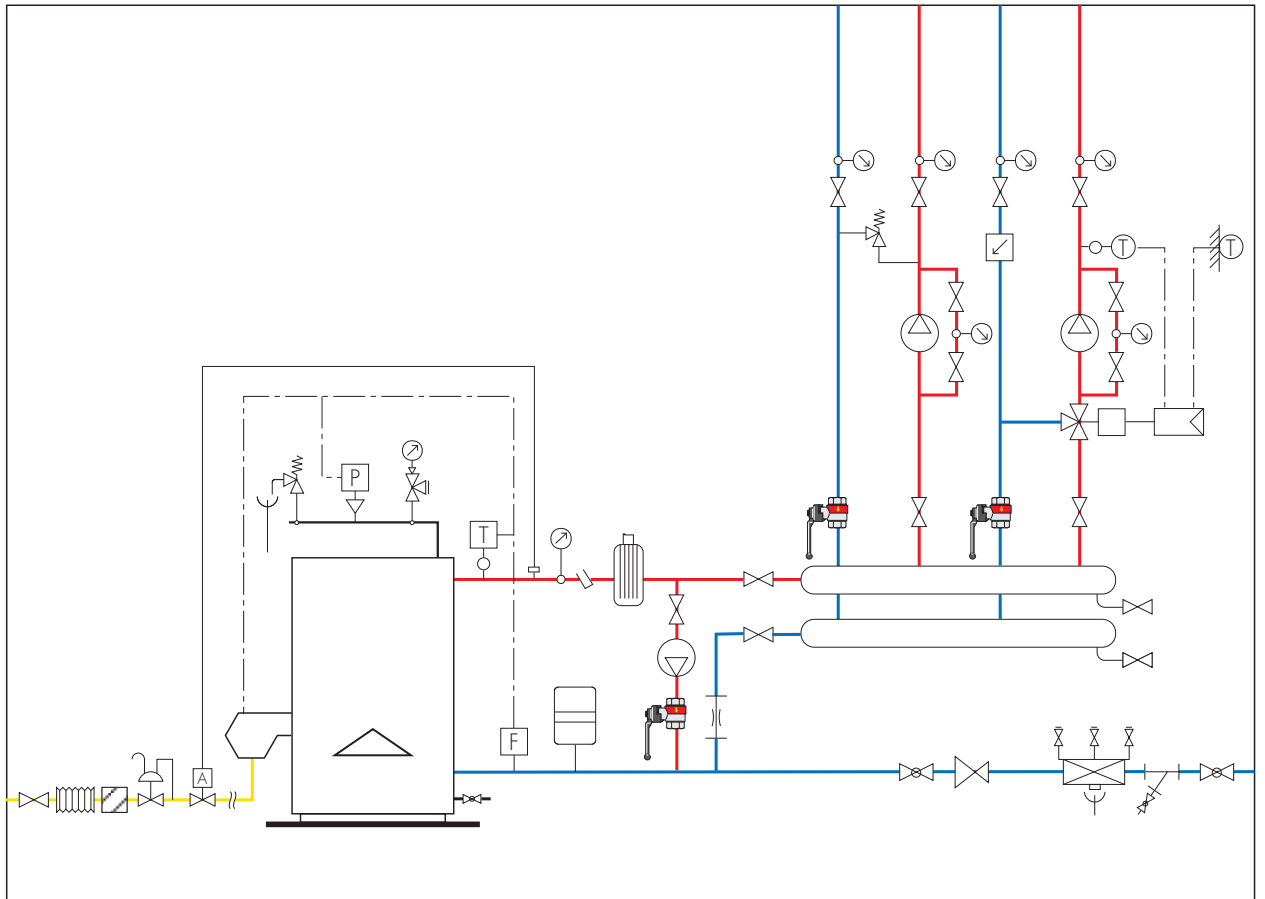
### Solar system with thermal integration



Heating system with two heat generators and various secondary circuits



Heating system with one heat generator and two different secondary circuits



## SPECIFICATION SUMMARY

### **3230 BALLSTOP series**

Ball valve with built-in check valve. Butterfly handle. Threaded connections 1/2" F (from 1/2" to 1"). Brass body, chrome plated. Brass ball, chrome plated. Check valve in PA (1/2"), POM (3/4"), PSU (1"). Aluminium control lever. PTFE control stem seals. NBR check valve seal. Stainless steel check valve spring. Medium water and hydrocarbons. Working temperature range 5–90°C. Maximum working pressure 16 bar. Minimum opening pressure for check valve 0,02 bar.

### **3230 BALLSTOP series**

Ball valve with built-in check valve. Lever handle. Threaded connections 1 1/4" F (from 1 1/4" to 2"). Brass body, chrome plated. Brass ball, chrome plated. Check valve in PSU (1 1/4"), chrome plated brass (1 1/2 and 2"). Aluminium control lever. PTFE control stem seals. NBR check valve seal. Stainless steel check valve spring. Medium water and hydrocarbons. Working temperature range 5–90°C. Maximum working pressure 16 bar. Minimum opening pressure for check valve 0,02 bar.

### **Code 332400 BALLSTOP**

Ball valve with built-in check valve. Butterfly handle. Threaded connections 1/2" M x 1/2" F. Brass body, chrome plated. Brass ball, chrome plated. PA check valve. Aluminium control lever. PTFE control stem seals. NBR check valve seal. Stainless steel check valve spring. Medium water and hydrocarbons. Working temperature range 5–90°C. Maximum working pressure 16 bar. Minimum opening pressure for check valve 0,02 bar.

### **333 BALLSTOP series**

Ball valve with built-in check valve. Butterfly handle. Connections 1/2" (1/2" and 3/4") F x nut 3/4" F. Brass body, chrome plated. Brass ball, chrome plated. Check valve in PA (1/2"), POM (3/4"). Aluminium control lever. PTFE control stem seals. NBR check valve seal. Stainless steel check valve spring. Medium water and hydrocarbons. Working temperature range 5–90°C. Maximum working pressure 16 bar. Minimum opening pressure for check valve 0,02 bar.

### **334 BALLSTOP series**

Ball valve with built-in check valve. Butterfly handle. Connections 1/2" (1/2" and 3/4") M x nut 3/4" F. Brass body, chrome plated. Brass ball, chrome plated. Check valve in PA (1/2"), POM (3/4"). Aluminium control lever. PTFE control stem seals. NBR check valve seal. Stainless steel check valve spring. Medium water and hydrocarbons. Working temperature range 5–90°C. Maximum working pressure 16 bar. Minimum opening pressure for check valve 0,02 bar.

### **327 BALLSTOP series**

Ball valve with built-in check valve for heating systems. Butterfly handle. Connections 1/2" (1/2" and 3/4") F. Brass body, chrome plated. Brass ball, chrome plated. Check valve in PA (1/2"), POM (3/4"). Aluminium control lever. PTFE control stem seals. EPDM check valve seal. Stainless steel check valve spring. Medium water and glycol solutions. Maximum percentage of glycol 30%. Working temperature range 5–110°C. Maximum working pressure 16 bar. Minimum opening pressure for check valve 0,02 bar.

### **327 BALLSTOP series**

Ball valve with built-in check valve for heating systems. Lever handle. Connections 1" (from 1" to 2") F. Brass body, chrome plated. Brass ball, chrome plated. Check valve in PSU (1" and 1 1/4"), chrome plated brass (1 1/2 and 2"). Aluminium control lever. PTFE control stem seals. EPDM check valve seal. Stainless steel check valve spring. Medium water and glycol solutions. Maximum percentage of glycol 30%. Working temperature range 5–110°C. Maximum working pressure 16 bar. Minimum opening pressure for check valve 0,02 bar.

*We reserve the right to change our products and their relevant technical data, contained in this publication, at any time and without prior notice.*



CALEFFI S.P.A. · S.R.229, N.25 · 28010 FONTANETO D'AGOGNA (NO) · ITALY · TEL. +39 0322 8491 · FAX +39 0322 863723

· [www.caleffi.com](http://www.caleffi.com) · [info@caleffi.com](mailto:info@caleffi.com) ·

© Copyright 2010 Caleffi